Claims 1-16 (Cancelled).

17. (Previously Presented) An apparatus for press molding a heated metal plate material, comprising:

a supply piping arrangement provided in a mold and configured to interact with a cooling medium; and

ejection holes providing in a molding surface of the mold and configured to interact with the cooling medium, wherein the supply piping arrangement and the ejection holes communicate with one another, and wherein at least one portion of the mold is formed from a porous metal having a plurality of holes.

18. (Previously Presented) The apparatus according to claim 17, wherein at least one of the ejection holes is provided solely in a portion of the molding surface of the mold where a heat transfer coefficient between the metal plate material and the mold is at most about 2000 W/m^2K.

19. (Previously Presented) The apparatus according to claim 17, further comprising:

a discharge piping arrangement provided in the mold and configured to interact with the cooling medium; and

discharge holes provided in the molding surface of the mold and configured to interact with the cooling medium, wherein the discharge piping arrangement and the discharge holes communicate with one another.

20. (Previously Presented) The apparatus according to claim 17, further comprising a cooling piping arrangement provided in the mold.

21. (Previously Presented) An apparatus for press molding a heated metal plate material, comprising:

a supply piping arrangement provided in a mold and configured to interact with a cooling medium;

ejection holes providing in a molding surface of the mold and configured to interact with the cooling medium, the supply piping arrangement and the ejection holes communicating with one another; and

a valve mechanism provided in at least one of the ejection holes.

22. (Previously Presented) The apparatus according to claim 21, wherein at least one of the ejection holes is provided solely in a portion of the molding surface of the mold where a heat transfer coefficient between the metal plate material and the mold is at most about 2000 W/m^2K.

23. (Previously Presented) The apparatus according to claim 21, further comprising:

a discharge piping arrangement provided in the mold and configured to interact with the cooling medium; and

discharge holes provided in the molding surface of the mold and configured to interact with the cooling medium, wherein the discharge piping arrangement and the discharge holes communicate with one another.

24. (Previously Presented) The apparatus according to claim 21, further comprising a cooling piping arrangement provided in the mold.

25. (Previously Presented) An apparatus for press molding a heated metal plate material, comprising:

a supply piping arrangement provided in a mold and configured to interact with a cooling medium;

ejection holes providing in a molding surface of the mold and configured to interact with the cooling medium, the supply piping arrangement and the ejection holes communicating with one another; and

a sealing mechanism provided at a periphery of the mold and configured to prevent the cooling medium from flowing.

26. (Previously Presented) The apparatus according to claim 25, wherein at least one of the ejection holes is provided solely in a portion of the molding surface of the mold where a heat transfer coefficient between the metal plate material and the mold is at most about 2000 W/m^2K.

27. (Previously Presented) The apparatus according to claim 25, further comprising:

a discharge piping arrangement provided in the mold and configured to interact with the cooling medium; and

discharge holes provided in the molding surface of the mold and configured to interact with the cooling medium, wherein the discharge piping arrangement and the discharge holes communicate with one another.

28. (Previously Presented) The apparatus according to claim 25, further comprising a cooling piping arrangement provided in the mold.

29. (Previously Presented) An apparatus for press molding a heated metal plate material, comprising:

a supply piping arrangement provided in a mold and configured to interact with a cooling medium;

ejection holes providing in a molding surface of the mold and configured to interact with the cooling medium, the supply piping and the ejection holes communicating with one another; and

plurality of projections provided on at least one portion of part of the molding surface of the mold and having an area ratio between about 1% and 90%, a diameter or circumcircle diameter between about 10 μm and 5 mm, and a height between about 5 μm and 1 mm.

30. (Previously Presented) The apparatus according to claim 29, wherein the projection is a NiW-plated layer or chrome-plated layer with a thickness between 10 μm and 80 μm.

31. (Previously Presented) The apparatus according to claim 29, wherein at least one of the ejection holes is provided solely in a portion of the molding surface of the mold where a heat transfer coefficient between the metal plate material and the mold is at most about 2000 W/m^2K.

32. (Previously Presented) The apparatus according to claim 29, further comprising:

a discharge piping arrangement provided in the mold and configured to interact with the cooling medium; and

discharge holes provided in the molding surface of the mold and configured to interact with the cooling medium, wherein the discharge piping arrangement and the discharge holes communicate with one another.

33. (Currently Amended) The apparatus according to claim [[17]] 29, further comprising a cooling piping arrangement provided in the mold.

34. (Previously Presented) A hot molding method for press molding a heated metal plate material using an apparatus, the apparatus including a supply piping arrangement provided in a mold and configured to interact with a cooling medium, and ejection holes providing in a molding surface of the mold and configured to interact with the cooling medium, the supply piping and the ejection holes communicating with one another, the method comprising:

providing the heated metal plate material; and

molding the material while the cooling medium is ejected into a gap between the metal plate material and the mold from the ejection holes.

35. (Previously Presented) The method according to claim 34, wherein the cooling medium that is ejected into the gap between the metal plate material and the mold is discharged from at least one of the ejection holes or discharge holes provided in the mold.

36. (Previously Presented) The method according to claim 34, wherein the cooling medium is ejected solely to a portion where a heat transfer coefficient calculated by measuring temperatures of the metal plate material and the mold is at most about 2000 W/m^2K.

37. (Previously Presented) The method according to claim 34, wherein the cooling medium includes at least one of (i) water, (ii) a polyhydric alcohol, (iii) a polyhydric alcohol solution, (iv) polyglycol, (v) a mineral oil with a flash point of at least about 120°C, (vi) a synthetic ester, (vii) a silicon oil, (viii) a fluorine oil, (ix) grease with a dropping point of at least about 120°C, or (x) a water emulsion obtained by mixing a surfactant into a mineral oil or synthetic ester.

38. (Previously Presented) The method according to claim 34, wherein the cooling medium is ejected when the metal plate material is maintained at a press bottom dead center of the apparatus.